DOCUMENT RESUME

ED 397 115 TM 025 249

AUTHOR Garcia, Teresa; And Others
TITLE Predictors of Self-Handicapping: An Examination of Personal and Contextual Factors.
PUB DATE Apr 96
NOTE 11p.; Paper presented at the Annual Meeting of the American Educational Research Association (New York, NY, April 8-12, 1996). This research was supported by a Faculty Incentive Grant from the Center for Applied Research and Development in Education.
PUB TYPE Reports - Research/Technical (143) -- Speeches/Conference Papers (150)

EDRS PRICE MF01/PC01 Plus Postage.
DESCRIPTORS *College Students; *Context Effect; Demography; Elementary Secondary Education; Higher Education; *Performance Factors; *Prediction; Self Concept; Student Evaluation; *Student Motivation
IDENTIFIERS *Self Handicapping

ABSTRACT

Evaluation is so paramount in students' lives that researchers have found that, for many students, one's self-worth is intricately tied to one's performance. Self-handicapping is a strategy that may be used to maintain one's self-worth. This anticipatory tactic typically involves the use of procrastination; by procrastinating, one clouds the causal factors involved in performance, such that in the event of poor performance, one may attribute the low grade to lack of effort rather than to low ability. Considering the negative impact of this strategy on students' learning and performance, identifying factors that trigger students' self-handicapping behaviors is imperative. Demographic, motivations, and contextual factors were studied for 529 college students at 3 different time points in a semester. Motivational and classroom context variables were stronger predictors of students' self-handicapping than were demographic variables. These results are discussed in terms of implications for instruction and suggestions for interventions. (Contains 4 tables and 25 references.) (Author/SLD)

****
* Reproductions supplied by EDRS are the best that can be made *
* from the original document. *
****

ED 397 115

U.S. DEPARTMENT OF EDUCATION
Office of Educational Research and Improvement
EDUCATIONAL RESOURCES INFORMATION
CENTER (ERIC)
☑ This document has been reproduced as received from the person or organization originating it.
☐ Minor changes have been made to improve reproduction quality.

• Points of view or opinions stated in this document do not necessarily represent official OERI position or policy.

PERMISSION TO REPRODUCE AND
DISSEMINATE THIS MATERIAL
HAS BEEN GRANTED BY
TERESA GARCIA

TO THE EDUCATIONAL RESOURCES
INFORMATION CENTER (ERIC)

Predictors of self-handicapping: An examination of personal and contextual factors

Teresa Garcia

Maria R. Lissi

Judy S. Matula

Cheryl L. Harris

University of Texas at Austin

Paper presented at the annual meeting of the American Educational Research Association, New York, NY, April 1996. This research was supported by a Faculty Incentive Grant from the Center for Applied Research and Development in Education awarded to the first author. Opinions expressed in this paper are those of the authors and not of the University of Texas at Austin.

Please address all correspondence to:

Teresa Garcia
Department of Educational Psychology
University of Texas at Austin, SZB 504
Austin, TX 78712
TEL: (512) 471-4155
FAX: (512) 471-1288
Email: tgarcia@mail.utexas.edu
WWW: http://ccwf.cc.utexas.edu/~tgarcia/

TM025249

BEST COPY AVAILABLE

Abstract

Evaluation is so paramount in students' lives that researchers have found that for many students, one's self-worth is intricately tied to one's performance. Self-handicapping is a strategy that may be used to maintain one's self-worth. This anticipatory tactic typically involves the use of procrastination: by procrastinating, one clouds the causal factors involved in performance, such that in the event of poor performance, one may attribute the low grade to lack of effort rather than to low ability. Considering the negative impact of this strategy on students' learning and performance, identifying the factors that trigger students' self-handicapping behaviors is imperative. We examined demographic, motivational, and contextual factors at three different time points during a semester, and found that motivational and classroom context variables were stronger predictors of college students' self-handicapping than were demographic variables. These results are discussed in light of implications for instruction and suggestions for interventions.

Background

Being evaluated is a fundamental aspect of schooling. Indeed, evaluation is so paramount in students' lives that researchers have found that for many students, one's self-worth is intricately tied -- perhaps even equated -- to one's performance (Covington, 1992; Covington & Beery, 1976; Rosenberg, 1965). The affective consequences of evaluation are powerful: success leads to a joyous sense of competence, whereas failure translates to a humiliating sense of inadequacy. It is because of this link between self-worth and performance that for some, effort can become a "double-edged sword" (Covington, 1992). That is, effort paired with success is a laudable combination, but consider the alternative outcome: effort paired with *failure*. That particular coupling of events carries devastating implications of low ability and incompetence, and can lead to the use of a strategy called self-handicapping.

Self-handicapping involves the creation of obstacles to success, which allow one to muddy the attributional waters of performance. In other words, by strategically creating obstacles to success, one's failure may be attributed to the obstacles, whereas one's success may be ascribed to exceptional ability (Covington, 1992; Garcia & Pintrich, 1994). This anticipatory strategy can take on many guises, but the most common impediment used in the academic domain is the withdrawal of effort, typically by procrastination. Self-handicapping can, accordingly, result in poor performance, but not trying and doing poorly is still considered to be the lesser of two evils (Covington, 1992). In other words, if one fears one's inadequacy, why risk confirming that inadequacy by devoting effort to the task? This unfortunate strategy may help protect one's sense of self-worth, but bodes poorly for one's chances to learn and for the likelihood of high achievement.

Accordingly, identifying the personal and contextual factors that trigger students' self-handicapping behaviors is especially relevant considering the negative impact of this strategy on students' learning and performance (Covington, 1992; Garcia & Pintrich, 1994). The goal of this study is to empirically examine various factors that are involved in self-handicapping, and to weigh the relative impact of personal factors and of contextual factors on the calculated withdrawal of effort.

Given the strong ties between affect and performance in self-handicapping, the personal factors that we proposed would be predictive of this strategy included several motivational variables. The focus on performance and

its implications for self-worth should mitigate one's endorsement of intrinsic goals (e.g., Dweck & Leggett, 1988) and be related to greater levels of anxiety (Covington, 1992; Smith, Snyder, & Handelsman, 1982). Higher levels of self-handicapping should be found in students who have low expectations for success, and who are doubtful about their competencies (self-efficacy: e.g., Schunk, 1989): that is, the anticipation of poor performance sets the stage for self-handicapping. The preceding motivational variables address the affective component of self-handicapping. However, since self-handicapping in the academic domain typically involves procrastination, low effort, and dilatory behavior, self-handicapping may also have a conative component. Accordingly, we tested to see if volitional control (Corno, 1993) is indeed negatively related to self-handicapping. Finally, there is some evidence for gender and racial differences in self-handicapping. Work done with adolescents has documented that boys are more likely to self-handicap than girls (Garcia & Pintrich, 1993), and that minority students engage in higher levels of self-handicapping than do their Anglo counterparts (Covington, 1992; Fordham & Ogbu, 1986; Steele, 1992). Because gender and race appear to contribute to self-handicapping, we also included these demographic components in our analyses.

The importance of contextual variables was highlighted by a recent study conducted by Arunkumar, Maehr, & Midgley (1995). These researchers found that perceiving a ceiling on one's future opportunities significantly predicted self-handicapping among middle school students (cf. Fordham & Ogbu, 1986). Maehr, Ames, and their colleagues have also stressed the role of classroom goal structures, as well as the role of the classroom environment on students' motivation. If the opportunity structure of society plays a role in self-handicapping, we may logically anticipate that the local opportunity structure of the classroom should play an important role as well. That is, one's classroom experiences may indeed contribute to the impetus to self-handicap. If a student views the class to be ability-focused, competitive, difficult, and low in meaningfulness, the emphasis on ability and the perception of a lack of emotional support should lay the ground for self-handicapping. Of course, the instructor is a crucial element of the course experience. Perhaps having an organized, enthusiastic, and competent teacher might provide a motivational boost that attenuates self-handicapping.

Accordingly, the research questions to be addressed in this study are as follows. First, do the personal and contextual variables discussed above relate to self-handicapping in the manner expected? Second, which of these factors are the strongest predictors of self-handicapping? Third, does the pattern of results (with regard to magnitude and direction of the predictors) vary over time? We should not neglect the fact that time is also a context: motivation ebbs and flows, and classroom experiences build upon one another. We considered it important to examine what predicted self-handicapping at different points in time.

Method

Subjects. Participants were 529 college students enrolled at a large southwestern research university. Students were sampled from three courses: Introduction to Educational Psychology (N = 414); Introduction to Psychology (N = 28); and Introduction to Statistics (N = 87). Students participated in this study as part of their course requirements. Women comprised 55% (N = 291) of the sample, and minorities constituted 32.1% (N =170, mostly Latino, Asian, and African-American) of the sample. The same survey instrument was administered three times during the Fall

1994 semester. Time 1 data were gathered approximately three weeks into the semester, and the Time 2 and Time 3 data were collected approximately five and ten weeks after the first administration.

Measures. Students' motivational beliefs (intrinsic goal orientation, self-efficacy, and test-anxiety) were assessed using three scales taken from the Motivated Strategies for Learning Questionnaire (MSLQ: Pintrich, Smith, Garcia, & McKeachie, 1993). The volitional control scale used here was taken from work done at the University of Michigan (e.g., Garcia & Pintrich, 1993), and our measure of self-handicapping was taken from work done by Strube (1986). Finally, several measures of course perceptions based on the research done by Moos, and Maehr and his colleagues (focus on ability, competition among students, course difficulty, course meaningfulness, and instructor quality) were included in the survey instrument. Questions were directed at the course level and Likert-scaled from 1 to 5 (1 = low, 5 = high). Cronbach alphas for the scales were acceptable, ranging from .62 to .90. Finally, in order to obtain a gauge of students' expectancies for success, we asked "What do you expect to get as your overall course grade?". Descriptive statistics and alphas for our measures are shown in Table 1.

Analyses. Because self-handicapping is proposed to be a strategy affected by context, parallel sets of hierarchical regressions were conducted separately for the Time 1, Time 2, and Time 3 data to address what predicted self-handicapping during different points in the semester. Indeed, correlations between the three measures of self-handicapping indicated that self-handicapping did fluctuate during the course of the semester (r_{T1T2} = .64; r_{T2T3} = .68; r_{T1T3} = .58). Each set of regressions consisted of four blocks of predictor variables, with self-handicapping used as the dependent variable. The first block regressed self-handicapping on gender and race. The second block regressed self-handicapping on gender, race, and the interaction between gender and race. The third block regressed self-handicapping on gender, race, gender x race, and motivational beliefs (intrinsic goal orientation, self-efficacy, test anxiety, and expectancy for success). The final equation regressed self-handicapping on gender, race, gender x race, motivational beliefs, and course perceptions (focus on ability, competition among students, course difficulty, course meaningfulness, and instructor quality). This type of hierarchical entry allowed us to measure how much additional variance was accounted for by each of the blocks: in other words, we were able to test how much of the variance in self-handicapping was due to background variables; how much of the variance in self-handicapping was due to motivational variables; how much of the variance in self-handicapping was due to course perceptions.

Results

Self-handicapping at the beginning of the semester. As we can see in Table 2, gender, but not being a minority student (nor the interaction between the two variables) significantly predicted self-handicapping (R^2 = .06). Women tended to report lower levels of self-handicapping than did the men, although the magnitude of this effect was reduced by a third when accounting for motivational variables, and halved when accounting for both motivation and course perceptions. Motivation accounted for the largest portion of the variance of Time 1 self-handicapping (26%): high anxiety and low levels of volitional control were associated with greater self-handicapping. Expected course grade was not significantly related to self-handicapping, although this may be due to restricted variance: all students seemed to believe they would do quite well in their courses, at least at the onset of the semester (see Table 1, M = 3.75). Course perceptions accounted for an additional 8% of the variance in self-handicapping: course

meaningfulness was associated with lower levels of self-handicapping, while course difficulty and a focus on ability were related to higher levels of self-handicapping. A total of 40% of the variance in Time 1 self-handicapping was accounted for by the 13 predictor variables.

Self-handicapping at the middle of the semester. The regressions using Time 2 measures also documented a gender gap in self-handicapping. As in the previous analyses, women reported lower levels of self-handicapping than did men (see Table 3). The gender gap decreased slightly when accounting for motivational beliefs, and the magnitude of the gender gap was halved when both motivation and course perceptions were included in the equation. The effect of being a member of a minority group was significant only in the third equation: after accounting for gender, motivation, and expectancy for success, minority students reported lower levels of self-handicapping than did their Anglo counterparts. Racial differences in self-handicapping were washed out, however, when course perceptions were taken into account. It appears that by the middle of the semester, not only do test anxiety and volitional control predict self-handicapping, one's intrinsic goals for the class also chime in, albeit weakly: high levels of intrinsic goal orientation were negatively related to self-handicapping. Low expectations for success were related to higher levels of self-handicapping. With regard to course perceptions, an ability focus, high course difficulty, and low course meaningfulness were related to greater self-handicapping. It is interesting to note that here, perceiving one's instructor as organized, competent, and effective is related to *higher* levels of self-handicapping (after accounting for personal characteristics, motivation, and other course perceptions). The bivariate correlation between instructor quality and self-handicapping (at Time 2) is -.16; it appears that what we have here is an example of suppression (Cohen & Cohen, 1983). The relatively high correlation between instructor quality and course meaningfulness (r = .62) may be the cause of this odd effect. Course meaningfulness may add irrelevant variance to instructor quality, so that in a multivariate analysis, the direction of the relationship between instructor quality and self-handicapping is the reverse of the bivariate association. Twenty-nine percent of the variance in Time 2 self-handicapping was accounted for by motivational factors. An additional 13% of the variance was attributable to background variables (3%) and course perceptions (10%).

Self-handicapping at the end of the semester. At the end of the semester, women continued to report lower levels of self-handicapping than did men (see Table 4). However, this difference disappeared when motivation and course perceptions were taken into account. As with the Time 2 regressions, the effect of being a minority was significant only when gender, motivation, and expectancy for success were in the equation: once course perceptions were included, the racial gap was washed out. The only motivational variables that significantly predicted self-handicapping were test anxiety (β = .18) and volitional control (β = -.42). Consistent with the Time 1 and Time 2 results, perceiving one's course as being high in ability focus and low in meaningfulness were related to higher levels of self-handicapping. We again found the suppression effect for instructor quality here (regression β = .14; bivariate r between self-handicapping and instructor quality = -.17; bivariate r between course meaningfulness and instructor quality = .57). All told, 40% of the variance in Time 3 self-handicapping was attributable to the joint effects of background variables (3%), motivational components (25%), and course perceptions (12%).

BEST COPY AVAILABLE

Discussion

The results presented here provide evidence for the depiction of self-handicapping as a dynamic, contextually-driven strategy, rather than a static trait. These data highlight the role of affective concerns in self-regulation, since students' motivation and reactions to a specific learning setting seem to play an important role in the degree of effort and cognitive engagement invested in a particular learning task (Covington, 1992; Garcia & Pintrich, 1994; Garcia, Matula, Harris, Dowdy, Lissi, Davila, & Powdrill, 1995; Garner, 1990).

It is indeed encouraging to find that self-handicapping does fluctuate, and that it appears to be more of a function of motivational and contextual variables than individual difference variables such as gender and race. In other words, if self-handicapping is more strongly influenced by variables which might be altered, then we can identify ways in which we can attenuate the incidence of self-handicapping among students. For example, we can teach volitional control strategies (e.g., Corno, 1987; 1992; 1993). We can also modify the classroom and school environments to be less focused on ability, by implementing the TARGET curriculum developed by Maehr and her colleagues (e.g., Anderman & Maehr, 1994; Maehr & Midgley, 1991).

We had two odd findings: the first involves the relationship between perceived instructor quality and self-handicapping. After adjusting for the effects of the other variables in the analyses, perceived instructor quality *positively* predicted self-handicapping at Times 2 and 3. We certainly would not suggest that teachers decrease the quality of their efforts in an attempt to attenuate self-handicapping on the part of their students! We did note that this odd effect may be due to course meaningfulness adding irrelevant variance to perceived instructor quality, thus reversing the direction of the original relationship between instructor quality and self-handicapping. Upon further reflection, this seemingly distorted effect may not be a statistical artifact after all.

Our reasoning is as follows: a student may place the blame on his/her poor performance on the ineffectiveness of the instructor -- in other words, "I didn't do well because I wasn't taught well." If the instructor is considered to be organized, effective, and enthusiastic, that particular source of culpability for poor performance is eliminated. This then should set the stage for self-handicapping: since the teacher cannot be blamed, one must arrange the circumstances so that low effort may be considered the cause of poor performance. In other words, one procrastinates so that in the event of a low grade, one may claim, "I've got a good teacher, but I did poorly because I didn't study enough." Our original expectation of teacher effectiveness providing a motivational boost which may discourage self-handicapping was not borne out at the multivariate level. However, it is important to remember that it is only after adjusting for motivational and contextual variables that the association between instructor quality and self-handicapping changed from negative to positive. This suggests that if we implement changes such as teaching students volitional control strategies and cultivating a mastery-focused learning climate, that should alter students' motivational orientations so that students do not equate poor performance with low ability. If a student is able to separate performance from ability, she or he need not seek to blame the teacher for not doing well, nor strategically attenuate his or her efforts so that the attributions for poor performance are clouded.

The second odd finding was the lack of association between self-handicapping and self-efficacy in our regressions. The zero-order correlations between self-efficacy and self-handicapping were negative (*r*s were -.24, -.29, and -.28 at Times 1, 2, and 3, respectively), but after adjusting for the other variables in the equations, the

associations between these two variables were washed out. The negative bivariate correlations bear out our hypothesis that expectations for poor performance trigger dilatory behaviors. However, it appears to be the case that the common variance between self-efficacy and self-handicapping is largely accounted for by the other variables in the analysis.

These data provide evidence for the complex and dynamic nature of student classroom motivation. The use of self-handicapping among our students strongly suggests that we, as educators, take a serious look at the tacit messages being sent and the competitive norms operating in the classroom (Covington, 1992; Garcia, 1995; Maehr & Midgley, 1991; Nicholls, 1989). Rosenholtz and her colleagues (Rosenholtz & Simpson, 1984; Rosenholtz & Wilson, 1980) have noted the importance of classroom grading and grouping practices in the development of students' conceptions of ability: how a unidimensional classroom organization (which is characterized by undifferentiated academic task structure, low student autonomy, segregation according to ability, and use of formal performance evaluations) promotes the narrow definition of ability as immutable and as perfectly indicated by performance on academic tasks. Indeed, the assumption of the equivalence of performance and ability is naive and ill-founded, yet is tremendously widespread. If we change the classroom and school environments to be multidimensional -- that is, offer multiple tasks and multiple means of assessment, allow for greater student autonomy, and use heterogeneous ability grouping when grouping is called for -- we set the stage for positive motivation, which then decreases the likelihood of strategies such as self-handicapping. If we are to cultivate positive motivational beliefs among our students, so that being in school does not pose a threat to one's self-worth, multidimensional classrooms, with their emphasis on alternative assessment and cooperative task structures, appear to be promising solutions.

References

Anderman, E.M., & Maehr, M.L. (1994). Motivation and schooling in the middle grades. *Review of Educational Research, 64*, 287-309.

Arunkumar, R., Maehr, M.L., & Midgley, C. (1995, April). *"If I don't do well tomorrow, there's a reason": Predictors of the use of self-handicapping strategies in middle school.* Paper presented at the annual meeting of the American Educational Research Association, San Francisco, CA.

Cohen, J., & Cohen, P. (1983). *Applied multiple regression/correlation analysis for the behavioral sciences.* Hillsdale, NJ: Erlbaum.

Corno, L. (1987). Teaching and self-regulated learning. In D. Berliner & B. Rosenshine (Eds.), *Talks to teachers* (pp. 249-266). New York: Random House.

Corno, L. (1992). Encouraging students to take responsibility for learning and performance. *Elementary School Journal, 93*, 69-83.

Corno, L. (1993). The best-laid plans: Modern conceptions of volition and educational research. *Educational Researcher, 22*, 14-22.

Covington, M.V. (1992). *Making the grade: A self-worth perspective on motivation and school reform.* Cambridge: Cambridge University Press.

BEST COPY AVAILABLE

Covington, M.V., & Beery, R.G. (1976). *Self-worth and school learning*. New York: Holt, Rinehart, & Winston.

Dweck, C.S., & Leggett, E.L. (1988). A social-cognitive approach to motivation and personality. *Psychological Review, 95*, 256-273.

Fordham, S., & Ogbu, J.U. (1986). Black students' school success: Coping with the "burden of acting White." *Urban Review, 18*, 176-206.

Garcia, T. (1994). The role of motivational strategies in self-regulated learning. In P.R. Pintrich (Ed.), *New directions for teaching and learning: Understanding self-regulated learning* (pp. 29-42). San Francisco: Jossey-Bass.

Garcia, T., & Pintrich, P.R. (1993, April). *Self-schemas, motivational strategies, and self-regulated learning*. Paper presented at the annual meeting of the American Educational Research Association, Atlanta, GA.

Garcia, T., & Pintrich, P.R. (1994). Regulating motivation and emotion in the classroom: The role of self-schemas and self-regulatory strategies. In D.H. Schunk & B.J. Zimmerman (Eds.), *Self-regulation of learning and performance: Issues and educational applications* (pp. 127-153). Hillsdale, NJ: Erlbaum.

Garcia, T., Matula, J.S., Harris, C.L., Dowdy, K.E., Lissi, M.R., Davila, C., & Powdrill, L. (1995, April). *Worriers and procrastinators: Differences in motivation, cognitive engagement, and achievement between defensive pessimists and self-handicappers*. Paper presented at the annual meeting of the American Educational Research Association, San Francisco, CA.

Garner, R. (1990). When children and adults do not use learning strategies: Toward a theory of settings. *Review of Educational Research, 60*, 517-529.

Maehr, M.L., & Midgley, C. (1991). Enhancing student motivation: A schoolwide approach. *Educational Psychologist, 26*, 399-427.

Nicholls, J.G. (1989). *The competitive ethos and democratic education*. Cambridge, MA: Harvard University Press.

Pintrich, P.R., Smith, D.A.F., Garcia, T., & McKeachie, W.J. (1993). Reliability and predictive validity of the Motivated Strategies for Learning Questionnaire (MSLQ). *Educational and Psychological Measurement, 53*, 801-813.

Rosenberg, J. (1965). *Society and the adolescent self-image*. Princeton, NJ: Princeton University Press.

Rosenholtz, S.J., & Simpson, C. (1984). The formation of ability conceptions: Developmental trend or social construction? *Review of Educational Research, 54*, 31-63.

Rosenholtz, S.J., & Wilson, B. (1980). The effect of classroom structure on shared perceptions of ability. *American Educational Research Journal, 17*, 75-82.

Schunk, D.H. (1989). Social-cognitive theory and self-regulated learning. In B.J. Zimmerman & D.H. Schunk (Eds.), *Self-regulated learning and academic achievement: Theory, research, and practice* (pp. 83-110). New York: Springer-Verlag.

Smith, T.W., Snyder, C.R., & Handelsman, M.M. (1982). On the self-serving function of an academic wooden leg: Test anxiety as a self-handicapping strategy. *Journal of Personality and Social Psychology, 42*, 314-321.

Steele, C.M. (1992). Race and the schooling of Black Americans. *Atlantic Monthly, 269*(4), 68-78.

Strube, M.J. (1986). An analysis of the self-handicapping scale. *Basic and Applied Social Psychology, 7*, 211-224.

Table 1
Descriptive statistics for motivation and course perception variables

	Time 1			Time 2			Time 3		
	Mean	SD	Alpha	Mean	SD	Alpha	Mean	SD	Alpha
Motivational components (scaled 1 - 5)									
Intrinsic goal orientation	3.38	.72	.69	3.29	.78	.75	3.26	.82	.77
Self-efficacy	4.18	.60	.88	4.07	.67	.90	4.04	.71	.89
Test anxiety	3.10	.91	.78	3.03	.91	.80	2.92	.94	.82
Volitional control	3.33	.60	.73	3.26	.60	.72	3.24	.60	.73
Self-handicapping	2.35	.72	.67	2.62	.74	.67	2.72	.72	.65
Expectancy for success (scaled 0 - 4.0)									
Expected final course grade	3.75	.49	--	3.48	.60	--	3.29	.66	--
Course perceptions (scaled 1 - 5)									
Focus on ability	1.62	.61	.73	1.80	.77	.80	1.85	.83	.83
Competition among students	2.06	.82	.74	2.13	.89	.80	2.14	.92	.81
Course difficulty	1.82	.63	.74	2.22	.72	.62	2.38	.76	.62
Course meaningfulness	3.77	.65	.74	3.62	.69	.76	3.52	.74	.78
Instructor quality	4.07	.72	.87	3.85	.81	.89	3.81	.86	.90

Table 2
Hierarchical regression results using Time 1 measures

	Block 1	Block 2	Block 3	Block 4
Background variables				
Gender (0 = male; 1 = female)	-.23***	-.22***	-.15***	-.10*
Race (0 = Anglo; 1 = minority)	.05	.07	.03	.06
Gender x Race		-.03	.02	.03
Motivational variables				
Intrinsic goal orientation			-.01	.00
Self-efficacy			-.03	.02
Test anxiety			.18***	.16***
Volitional control			-.45***	-.45***
Expectancy for success				
Expected final course grade			-.04	-.05
Classroom Perceptions				
Focus on ability				.22***
Competition among students				-.08
Course difficulty				.12*
Course meaningfulness				-.10*
Instructor quality				.02
R^2	.06***	.06***	.32***	.40***
Change in R^2		.00	.26***	.08***

Note. Missing data were handled using listwise deletion. Standardized regression coefficients are shown. Significance levels are denoted as follows: * $p < .05$; ** $p < .01$; *** $p < .001$.

Table 3
Hierarchical regression results using Time 2 measures

	Block 1	Block 2	Block 3	Block 4
Background variables				
Gender (0 = male; 1 = female)	-.16***	-.19***	-.14**	-.09*
Race (0 = Anglo; 1 = minority)	-.02	-.06	-.11*	-.05
Gender x Race		.06	.07	.08
Motivational variables				
Intrinsic goal orientation			-.09*	-.08*
Self-efficacy			-.03	.07
Test anxiety			.20***	.15***
Volitional control			-.39***	-.44***
Expectancy for success				
Expected final course grade			-.10*	-.12**
Classroom Perceptions				
Focus on ability				.17***
Competition among students				-.02
Course difficulty				.17***
Course meaningfulness				-.16***
Instructor quality				.17***
R^2	.03***	.03**	.32***	.42***
Change in R^2		.00	.29***	.10***

Note. Missing data were handled using listwise deletion. Standardized regression coefficients are shown.
Significance levels are denoted as follows: * $p < .05$; ** $p < .01$; *** $p < .001$.

Table 4
Hierarchical regression results using Time 3 measures

	Block 1	Block 2	Block 3	Block 4
Background variables				
Gender (0 = male; 1 = female)	-.15***	-.15**	-.10*	-.03
Race (0 = Anglo; 1 = minority)	-.07	-.08	-.12*	-.03
Gender x Race		.01	.02	-.01
Motivational variables				
Intrinsic goal orientation			-.03	-.07
Self-efficacy			-.05	.07
Test anxiety			.18***	.11**
Volitional control			-.42***	-.45***
Expectancy for success				
Expected final course grade			-.04	-.06
Classroom Perceptions				
Focus on ability				.27***
Competition among students				.04
Course difficulty				.09
Course meaningfulness				-.12*
Instructor quality				.14**
R^2	.03**	.03**	.28***	.40***
Change in R^2		.00	.25***	.12***

Note. Missing data were handled using listwise deletion. Standardized regression coefficients are shown.
Significance levels are denoted as follows: * $p < .05$; ** $p < .01$; *** $p < .001$.